

VMware® VMmark™ V1.1 Results

Vendor and Hardware Platform: Sun Microsystems Sun Fire X4450
Virtualization Platform: VMware ESX 3.5.0 Update 2 (build 110268)

VMmark V1.1 Score =
19.47 @ 14 Tiles

Tested By: Sun Microsystems

Test Date: 12/22/2008

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Performance

	webserver		javaserver		mailserver		fileserver		database		
TILE_0	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1743.58	1.71	17983.85	1.08	1749.62	1.60	17.64	1.38	2111.25	1.41	1.42
p1	1698.20	1.67	17538.67	1.06	1670.30	1.52	17.35	1.35	2107.28	1.41	1.39
p2	1690.55	1.66	17997.17	1.08	1656.97	1.51	17.45	1.36	2108.93	1.41	1.39
TILE_1	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1764.22	1.73	17965.03	1.08	1823.70	1.66	17.95	1.40	2115.80	1.42	1.44
p1	1727.00	1.69	17912.53	1.08	1747.97	1.59	17.56	1.37	2125.03	1.42	1.42
p2	1732.83	1.70	17514.90	1.05	1658.30	1.51	17.68	1.38	2126.38	1.42	1.40
TILE_2	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1757.47	1.72	18020.92	1.08	1797.05	1.64	17.44	1.36	2181.38	1.46	1.44
p1	1761.28	1.73	17538.60	1.06	1668.35	1.52	17.53	1.37	2182.68	1.46	1.41
p2	1706.65	1.67	18010.70	1.08	1835.85	1.67	17.03	1.33	2183.82	1.46	1.43
TILE_3	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1768.10	1.74	18004.28	1.08	1760.80	1.61	17.17	1.34	2197.57	1.47	1.43
p1	1744.60	1.71	17980.05	1.08	1697.38	1.55	16.86	1.31	2200.78	1.47	1.41
p2	1750.15	1.72	18000.72	1.08	1761.47	1.61	17.28	1.35	2191.50	1.47	1.43
TILE_4	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1788.17	1.75	17511.65	1.05	1663.22	1.52	17.51	1.36	2111.30	1.41	1.40
p1	1737.05	1.70	17914.53	1.08	1750.30	1.60	17.45	1.36	2109.78	1.41	1.41
p2	1735.58	1.70	17952.58	1.08	1695.40	1.55	17.04	1.33	2115.15	1.42	1.40
TILE_5	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1750.65	1.72	17994.95	1.08	1655.97	1.51	17.50	1.36	2118.62	1.42	1.40
p1	1743.22	1.71	17957.47	1.08	1745.92	1.59	17.27	1.35	2116.80	1.42	1.41
p2	1713.03	1.68	17988.78	1.08	1778.70	1.62	17.46	1.36	2114.12	1.42	1.42
TILE_6	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1756.53	1.72	17950.40	1.08	1645.08	1.50	17.13	1.34	2115.57	1.42	1.40

p1	1720.03	1.69	17950.55	1.08	1657.45	1.51	17.80	1.39	2119.22	1.42	1.40
p2	1689.08	1.66	18000.38	1.08	1635.22	1.49	17.60	1.37	2114.75	1.42	1.39
TILE_7	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1811.78	1.78	17951.20	1.08	1540.55	1.40	16.95	1.32	2220.47	1.49	1.40
p1	1803.85	1.77	17920.10	1.08	1624.03	1.48	17.29	1.35	2223.03	1.49	1.42
p2	1772.92	1.74	17977.72	1.08	968.50	0.88	17.41	1.36	2220.65	1.49	1.27
TILE_8	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1780.35	1.75	17985.88	1.08	1489.65	1.36	17.09	1.33	2187.65	1.47	1.38
p1	1713.42	1.68	17981.50	1.08	1562.97	1.43	17.01	1.33	2172.65	1.46	1.38
p2	1723.12	1.69	18008.08	1.08	1571.05	1.43	17.28	1.35	2141.05	1.43	1.38
TILE_9	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1757.15	1.72	17901.28	1.08	1539.05	1.40	17.61	1.37	2196.57	1.47	1.39
p1	1737.03	1.70	17908.00	1.08	1676.20	1.53	16.80	1.31	2193.53	1.47	1.40
p2	1704.35	1.67	17959.60	1.08	1645.47	1.50	17.64	1.38	2188.40	1.47	1.40
TILE_10	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1743.47	1.71	17988.67	1.08	1395.25	1.27	17.50	1.36	2146.85	1.44	1.36
p1	1750.80	1.72	17961.28	1.08	1589.12	1.45	16.80	1.31	2114.07	1.42	1.38
p2	1704.10	1.67	17997.20	1.08	1615.83	1.47	17.13	1.34	2122.93	1.42	1.38
TILE_11	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1744.60	1.71	17483.97	1.05	1409.05	1.28	17.41	1.36	2127.43	1.43	1.35
p1	1700.78	1.67	17875.00	1.08	1554.03	1.42	17.15	1.34	2117.65	1.42	1.37
p2	1664.92	1.63	17933.78	1.08	1625.65	1.48	17.26	1.35	2117.78	1.42	1.38
TILE_12	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1730.95	1.70	17923.05	1.08	1272.35	1.16	17.05	1.33	2119.97	1.42	1.32
p1	1727.45	1.70	17939.15	1.08	1414.75	1.29	17.12	1.33	2123.10	1.42	1.35
p2	1660.28	1.63	17943.17	1.08	1726.05	1.57	17.14	1.34	2122.35	1.42	1.39
TILE_13	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	Actual	Ratio	GM
p0	1767.67	1.73	17512.88	1.05	1211.85	1.10	17.03	1.33	2197.78	1.47	1.32
p1	1727.88	1.70	17909.03	1.08	1466.38	1.34	17.00	1.32	2201.12	1.47	1.37
p2	1721.00	1.69	17937.40	1.08	1643.20	1.50	17.22	1.34	2198.75	1.47	1.40
p0_score:	19.44										
p1_score:	19.51										
p2_score:	19.47										
Unreviewed_VMmark_Score:	19.47										

Configuration

Server and Network

Server Manufacturer and Model	Sun Microsystems Sun Fire X4450
Processor Vendor and Model	6-core Intel Xeon X7460
Processor Speed (GHz)	2.66GHz
Number of Sockets/Cores per Socket	4 Sockets / 6 Cores per Socket (24 Cores Total)
Primary Cache	32KB(I)+32KB(D) on chip, per core
Secondary Cache	3MB per core pair, 9MB total
Other Cache	16MB I+D L3on chip
Memory	80GB(20 x 4GB)PC-5300 DDR2 667Mhz Unregistred DIMM
Disk Subsystem Type	SAS(OS), FC SAN (VMs)
Number of Disk Controllers	1
Number of Host Bus Adapters	3
Host Bus Adapter Vendors and Models	1x QLogic Corp QLA2432 4Gb FC 2x Emulex LPe11002 4Gb FC
Number of Network Controllers	3
Network Controller Vendors and Models	2x Intel PRO/1000 PT Dual Port 1GbE NIC On-Board Intel 82571EB QUAD 1Gbit(4 ports) Ethernet controller
Network Switch	CISCO Catalyst 3750
Network Speed	1000Base-T
Other Hardware	None
Other Software	None
Hardware Availability Date	09/17/2008
Software Availability Date	09/17/2008

Virtualization Software

Vendor, Product, Version, and Build	VMware ESX 3.5.0 Update 2 Build 110268
Virtualization Type	Hardware Virtualization
Supplemental Software	None
Virtualization Software Availability Date	07/28/2008

Storage

Array Vendor, Model, and Firmware Version	1. 7x Sun StorageTek 2540 with 2501 SAS Expansion Tray IOM, Version 06.70.54.11 2. 2x Sun StorageTek 2540 Version 06.70.54.11
Fibre Channel Switch Vendors and Models	Brocade 5000
Disk Space Used	946.6GB for VMs
Array Cache Size	7x Sun StorageTek 2540, 1024MB 2x Sun StorageTek 2540, 512MB
Number and Size of LUNs	LUN1: 400GB LUN2: 405GB LUN3: 410GB

	LUN4: 415GB LUN5: 442GB LUN6: 444GB LUN7: 380GB LUN8: 385GB LUN9: 435GB LUN10: 440GB LUN11: 390GB LUN12: 395GB LUN13: 420GB LUN14: 445GB LUN15: 450GB LUN16: 425GB
RAID Type	RAID 0
Number of Members per RAID Set	LUN1-LUN16: 12 members
Disk Vendor, Model, and Speed	Seagate Cheetah, 15K

Clients

Number of Clients	14
System Model(s)	1. Sun Blade 6000 Chassis with 10 Sun Blade X6220 2. Sun Blade 6000 Chassis with 4 Sun Blade X6220
Processor Vendor(s) and Model(s)	AMD Dual Core Opteron 2220
Processor Speed(s) (GHz)	2.8
Number of Sockets/Cores per Socket	2 Sockets / 2 Cores per Socket (4 Cores Total)
Memory	16GB
Network Controller Vendor and Model	Intel PRO 1000/PT Dual port 1GbitE NIC
Operating System, Version, and Service Pack	Microsoft Windows Server 2003 Enterprise Edition 2003 SP2
Other Hardware	None
Other Software	none

Notes for Workload

Server and Network Notes

- Used one internal 73GB SAS/15K drive for OS
- HW Prefetch disabled (default enabled)
- Adjacent cache line Prefetch disabled (default enabled)
- Intel Virtualization technology enabled (default disabled)
- IOAT enabled (default disabled)
- On-Board Ethernet Controller port3 not used

Virtualization Software Notes

- Network adapter type set to enhanced vmxnet for all VMs
- vSwitch 1-6 configured with 120 ports (default 56)
- Six vSwitches(1-6) bound to 6 physical NICs, vmnic 4,5,6,7,1,2 respectively
- vSwitch0 bound to on-board Ethernet Controller port 0, vmnic0
- vSwitch0 was dedicated to Service Console
- vSwitch1 attached to Javaserer, Webserver 0,1,2,3,4,13, Standby 0,1,3,4,13 and Mailserver0, Fileserver0, Webserver10
- vSwitch2 attached to Fileserver 1-13
- vSwitch3 attached to Mailserver 1-13
- vSwitch4 attached to Database 0-13
- vSwitch5 attached to Javaserer, Standby, Webserver 5-8
- vSwitch6 attached to Javaserer, Standby, Webserver 9,11,12 and Standby10, Javaserer10, Standby2
- LUN1: Database 0,2,3,4,6,7,8 and Fileserver4 VMs
- LUN2: Database 1,5,9,10,11,12,13 and Fileserver5 VMs
- LUN3: Tile2 VMs (Except Database)
- LUN4: Tile3 VMs (Except Database)
- LUN5: Tile4 VMs (Except Database and Fileserver)
- LUN6: Tile5 VMs (Except Database and Fileserver)
- LUN7: Tile6 VMs (Except Database)
- LUN8: Tile13 VMs (Except Database)
- LUN9: Tile9 VMs (Except Database)
- LUN10: Tile10 VMs (Except Database)
- LUN11: Tile7 VMs (Except Database)
- LUN12: Tile8 VMs (Except Database)
- LUN13: Tile0 VMs (Except Database)
- LUN14: Tile11 VMs (Except Database)
- LUN15: Tile12 VMs (Except Database)
- LUN16: Tile1 VMs (Except Database)
- VMFS3.MaxHeapSizeMB set to 64 (default 16)
- Disk.SchedNumRequestOutstanding set to 128 (default 32)
- Misc.RunningVCpuLimit set to 256 (default 128)
- Removed IDE and Floppy devices from all VMs except Javaserer1 and WebServer 0,1,3-13
- sched.cpu.max set to "63317" on Javaserer1 & 12, mailserver 0-13 (default unlimited)
- Virtualized MMU was disabled on all Linux VMs and mailserver0,3-13 (default automatic)
- Vmkernel.Boot.cpuCellSize set to 6 (default 0)
- TcpiUseIoat set to 1 (default 0)
- syncTime set to TRUE for all VMs except for mailservers 0-13
- Logging was disabled for all VMs except fileserver 0,2-13 (default logging enabled)
- vmfs2 was unloaded prior the run
- Stopped firewall, iptables and pegasus services prior the run

Operating System Notes

- Microsoft Windows Server 2003 Virtual Machines were updated to SP2 and KB933360 was applied.

Software Notes

Client Notes

- KB 933360 was applied

Other Notes

This is a full disclosure report for a VMmark benchmark result. All published VMmark results must be from fully-compliant tests for which a full disclosure report is publicly available.

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